modification at time t5 of object "obj 6". A variety of techniques for prioritizing objects within the message queue 380 is described in co-pending patent application entitled "Method and Apparatus for Updating Information in a Low-Bandwidth Client/Server Object-Oriented System", serial no. 09/518,753, which is incorporated by reference herein in its entirety for all purposes.

While the invention has been shown and described with reference to specific preferred embodiments, it should be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention as defined by the following claims. For example, although the described embodiments illustrate the principles of the invention with respect to wireless networks, such also apply to wire-line networks.

What is claimed is:

1. In a multi-hop network including a plurality of nodes, a method for disseminating topology and link-state information over the multi-hop network, comprising:

maintaining a path tree for each source node in the network that can produce an update message, each path tree having that source node as a root node, a parent node, and zero or more children nodes;

receiving an update message from the parent node in the path tree maintained for the source node that originated the received update message, the update message including information related to a link in the network; and

determining whether to forward the update message to children nodes, if any, in the path tree maintained for the source node that originated the update message in response to the information in the received update message.

2. The method of claim 1 wherein the information related to the link indicates whether the update message is to be forwarded to other nodes.

3. The method of claim 1 wherein the path tree associated with each source node is a minimum-hop-path tree.

4. The method of claim 1 further comprising obtaining link-state information from one or more nodes in the path tree maintained for a given source node for use in developing the path tree to that source node.

5. The method of claim 1 wherein the link is a wireless communication link.

6. The method of claim 1 further comprising sending a new parent message to a node selecting that node as a new parent node for the source node originating the update message.

7. The method of claim 6 further comprising receiving from the new parent node in response to the new parent message link-state information associated with the source node that originated the update message.

8. The method of claim 7 wherein the new parent message included a serial number and the link-state information received in response to the new parent message is associated with update messages having serial numbers that are greater than the serial number included in the new parent message.

9. The method of claim 1 further comprising:

determining that a path through a new parent node for the source node originating the update message has the same number of node hops as the path through the current parent node, and

maintaining the current parent node as the parent node for the given source node.

10. The method of claim 1 further comprising:

determining that a path to the source node originating the update message ceases to exist; and

maintaining the current parent node as the parent node for the source node.

11. The method of claim 1 further comprising broadcasting the update message to the children nodes if the number of children nodes exceeds a predefined threshold when forwarding the update message to children nodes.

12. The method of claim 1 further comprising transmitting the update message to each child node using a unicast mode if the number of children nodes is less than a predefined threshold when forwarding the update message to children nodes.

13. The method of claim 1 further comprising:

computing a parent node for each neighbor node and source node; and

determining which neighbor nodes are children nodes for a given source node;

14. A network, comprising:

a plurality of nodes in communication with each other over communication links, each node maintaining a path tree for each source node in the network that can produce an update message, each path tree having that source node as a root node, a parent node, and zero or more children nodes,

wherein one of the nodes (i) receives an update message from the parent node in the path tree maintained for the source node that originated the received update message, the update message including information related to a link in the network, (ii) and determines whether to forward the update message to children nodes, if any, in the path tree maintained for the source node that originated the update message in response to the information in the received update message.